

**DEPARTMENT OF ENVIRONMENTAL QUALITY
PERMITTING and COMPLIANCE DIVISION
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM
(MPDES)**

STATEMENT OF BASIS
(For Proposed Permit Modification)

PERMITTEE: Sun Prairie Village County Water & Sewer District

PERMIT NO.: MT0028665

RECEIVING WATER: Sun River

FACILITY INFORMATION:

Mailing Address: P.O. Box 1127
Great Falls, MT 59403

Contacts: Janet Horne, Interim General Manager, (406) 965-3944
Floris Dyke, President

FEE INFORMATION

Number of Outfalls: one (1)
Type of Outfall: 001 - Treated domestic wastewater

I. Permit Status

This is a major modification for the MPDES permit for the Sun Prairie Village County Water & Sewer District (Sun Prairie) wastewater treatment lagoon. The current MPDES permit for Sun Prairie was effective September 1, 2005 and will expire on August 31, 2010. On February 9, 2009, Sun Prairie submitted a request, along with an updated permit application and fees, to extend the deadline for completing a mixing zone study required by the permit. The requested change in deadline is from February 28, 2009 until October 31, 2009.

In addition to the modification of the compliance schedule date, the Department will update and/or correct the following:

- Update the effluent pathogen indicator species to *Escherichia coli* (*E. coli*) bacteria. This indicator species replaces the former fecal coliform bacteria and the standards are directly translated. The pathogen indicator species in the water quality standards (as regulated under ARM 17.30 Subchapter 6 and listed in the Department Circular, DEQ-7) were formally adopted in February 2006 to reflect *E. coli*;

- Indicate that the treatment works includes Ultraviolet (UV) Disinfection under Section I.A., page 3 in the MPDES permit;
- Correct a typographical error in the Interim & Final Effluent Limits tables, on pages 4-5 of the MPDES permit, to correctly define BOD₅ as “Biochemical Oxygen Demand;” and
- Correct a typographical error in the narrative condition below Table 2, page 7 in the MPDES permit. The correction will reflect the monitoring frequency of phosphorus as monthly. The monitoring table correctly stated the monitoring frequency for phosphorus as monthly; however, the narrative description below the table incorrectly stated quarterly.

II. Facility Information – Compliance History

The existing permit established compliance deadlines for Sun Prairie in the Special Conditions section. Section I.F. required Sun Prairie to submit annual reports describing final permit limits or conditions (for pathogen concentration, total phosphorus load, and a defined mixing zone), beginning in calendar year 2005. While the only compliance schedule reports received by the Department were for 2005 and 2006 (January 10, 2006 and December 28, 2006), Sun Prairie did make the following improvements to conform to the compliance schedule:

1. UV disinfection was installed by December 2008 [phone conversation with Janet Horne, Sun Prairie Interim General Manager, February 25, 2008];
2. In December 2008, Morrison-Maierle notified the Department that the phosphorus study would be submitted by the deadline of February 28, 2009; and
3. In December 2008, Morrison-Maierle notified the Department that the mixing zone study would be delayed due to ice; the official application for a permit extension was received by the Department on February 9, 2009.

Therefore, the mixing zone study is the only Special Condition that needs to be addressed in this permit modification.

III. Water-Quality Based Effluent Limits

The existing permit established limitations on fecal coliform bacteria as the pathogen indicator limits. This permit modification will change the pathogen indicator bacteria limits from fecal coliform to *E. coli* to comply with Montana water quality standards that became effective on February 1, 2006. The 30-day geometric mean limit on *E. coli* of 126 colony forming units (cfu) per 100 milliliters (mL) correlates with the current permit final limit of 200 colonies per 100 mL for fecal coliform bacteria (Feldman, MTDEQ).

The applicable effluent limitations for *E. coli* are:

- April 1 through October 31, of each year, the geometric mean number of *E. coli* may not exceed 126 colony forming units per 100 mL and 10% of the total samples may not exceed 252 colony forming units per 100 mL during any 30-day period [ARM 17.30.625(2)(a)(i)]; and
- November 1 through March 31, the geometric mean number of *E. coli* may not exceed 630 colony forming units per 100 mL and 10% of the samples may not exceed 1,260 colony forming units per 100 mL during any 30-day period [ARM 17.30.625(2)(a)(ii)].

IV. Mixing Zone

During drafting of the existing permit, the Department determined that site specific data were missing to adequately assess the mixing of total ammonia as nitrogen. The Montana Water Quality Act requires that mixing zones be the smallest practicable size, have minimal effects on water uses, and have definable boundaries. As a result, the Department required the permittee to complete a mixing zone study.

A mixing zone for pathogens will not be granted.

V. Final Effluent Limitations

Effective on the modified date of this permit, the pathogen limitations effluent limits are as set forth below:

Final Pathogen Effluent Limits				
Parameter	Units	Average Monthly Limit ¹	Average Weekly Limit ¹	Maximum Daily Limit
<i>Escherichia coli</i> (<i>E. coli</i>) ^{2, 4}	cfu/100ml	126	252	--
<i>Escherichia coli</i> (<i>E. coli</i>) ^{3, 4}	cfu/100ml	630	1,260	--
Footnotes:				
1. See Definition section at end of permit for explanation of terms.				
2. This limitation applies from April 1 through October 31.				
3. This limitation applies from November 1 through March 31.				
4. Report Geometric Mean if more than one sample is collected in the reporting period.				

VI. Self-Monitoring Requirements

Effective on the modified date of this permit, *E. coli* monitoring will replace fecal coliform monitoring of the effluent. Sample frequency will remain once per week, sample type will remain grab and results shall be reported in colony forming units (cfu) per 100 ml.

The narrative in Part I.C on page 7 of the MPDES permit will be corrected to reflect monthly monitoring for phosphorus, as stated in Table 2.

All other self-monitoring requirements of the permit issued August 3, 2005 will remain fully effective and are unchanged by this modification.

VII. Special Conditions – Compliance Schedule

The proposed permit states a mixing zone analysis is needed for the issuance of the next permit. A mixing zone is necessary to more accurately determine conditions for ammonia limits.

- c. By October 31, 2009, submit a comprehensive mixing zone study.

The remaining requirements under Section I.F.1. have not been changed.

VIII. Information Sources

1. Montana Water Quality Act, Montana Code Annotated 75-5-101, *et seq.*, “Montana Water Quality Act,” 2003.
2. Administrative Rules of Montana Title 17 Chapter 30 - Water Quality
 - Subchapter 2 - Water Quality Permit and Application Fees, December 2006.
 - Subchapter 5 - Mixing Zones in Surface and Ground Water, March, 2006.
 - Subchapter 6 - Montana Surface Water Quality Standards and Procedures, March 2006.
 - Subchapter 13 - MPDES Permits, March 2006.
3. Montana Department of Environmental Quality Circular DEQ-7, Montana Numeric Water Quality Standards, February 2008
4. MPDES Permit Number MT0028665:
 - Administrative Record
 - Application EPA Forms 1 and 2A, 2009
5. David Feldman, MTDEQ, Basis For Rule Change, April 21, 2005

Prepared by: Christine Weaver
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